

Notes on study of age and growth of the hyrcanian frog, *Rana pseudodalmatina eiselt et schmidtler*, 1971 in the Talysh Mountains

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Abstract

© 2018 Folium Publishing Company. The article presents the first results of a study of age and growth of the Hyrcanian frog, *Rana pseudodalmatina* in the Talysh Mountains. The animals were caught in the first Decade of March 2011 in Sym village in Astara District of Azerbaijan. The age was determined by a skeletochronological analysis of clipped phalanges of the third toe of hind limb. Preparations were made and examined with well-visible thick sections of 56 males and 7 females. Males in the sample were 1 – 5 years old and females were 2 – 4 years old. The average age of males was 3.2 years and 3.7 years of females. Most of studied frogs were specimens in the age of three and four years. The most intensive growth of the Hyrcanian frog occurs before reaching sexual maturity. A male at the age of one year had a body length equal to 309.8% of the average length of the metamorphs from the same reservoir, two-year-old males were 328.8 – 341.3%, three-year-olds were 271.7 – 385.9%, four-year-olds were 347.8 – 388.6%, five-year — 369.6 – 421.2%. The relative length of a two-year-old female was 342.4%, three-year-old females — 391.3 – 432.1, four-year-olds — 383.2 – 397.8%.

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Keywords

Age, Growth, *Rana pseudodalmatina*, Skeletochronology, The hyrcanian frog

References

- [1] Alekperov A. M. (1978), Amphibians and Reptiles of Azerbaijan, Baku [in Russian].
- [2] Ananjeva N. B., Borkin L. Y., Darevsky I. S., and Orlov N. L. (1998), Amphibians and Reptiles. Encyclopedia of the Nature of Russia, Moscow [in Russian].
- [3] Bannikov A. G., Darevsky I. S., Ishchenko V. G., Rustamov A. K., and Shcherbak N. N. (1977), The Handbook of Amphibians and Reptiles of the USSR, Moscow [in Russian].
- [4] Belyavsky V. I., Zamaletdinov R. I., Anisina O. S., and Mikhailova R. I. (2007), Application of the Micro-volum-cryostat in Zoological Studies. Educational-methodical Manual, Kazan [in Russian].
- [5] Borkin L. Ya. (1977), "On a new find and taxonomic position of brown frogs of Kopet-Dagh, Turkmenia," Tr. Zool. Inst. AN SSSR, 74, 24 – 31 [in Russian].
- [6] Eiselt J. and Schmidtler J. F. (1971), "Vorläufige Mitteilung über zwei neue Subspezies von Amphibia salientia aus dem Iran," Ann. Naturhist. Mus. Wien, 75, 383 – 385.
- [7] Frost D. R. (2017), Amphibian Species of the World, an Online Reference. Ver. 6.0, <http://research.amnh.org/vz/herpetology/amphibia/index.php>.
- [8] Gokhelashtyly R. K. and Tarkhnishvili D. N. (1994), "Sand-wich of herring during the consecutive years," Herpetozoa, 7, 11-18.

- [9] Ishchenko V. G. (2005), "Growth of brown frogs of fauna of Russia: some problems of study of growth in Amphibians," *Russ. J. Herpetol.*, 12(2), 153 – 157.
- [10] Ishchenko V. G. (1996), "Problems of demography and declining populations of some Euroasiatic brown frogs," *Russ. J. Herpetol.*, 3(2), 143 – 151.
- [11] Kidov A. A. (2010), "Notes on the biology of Iranian long-legged wood frog (*Rana macrocnemis pseudodalmatina* Eiselt et Schmidtler, 1971) in Southeastern Azerbaijan," *Curr. Stud. Herpetol.*, 10(3 – 4), 109 – 114 [in Russian].
- [12] Kidov A. A. (2012), "Hibernation of Iranian long-legged wood frog (*Rana macrocnemis pseudodalmatina* Eiselt et Schmidtler, 1971) (Amphibia, Anura: Ranidae) in Talysh Mountains," *Estestv. Tekhn. Nauki*, 58(2), 102 – 105 [in Russian].
- [13] Kidov A. A. (2016), "Analysis of distribution of the Hyrcanian frog, *Rana pseudodalmatina* in Azerbaijan," *Byull. Tambov Univ. Ser. Estestv. Tekhn. Nauki*, 21(5), 1770 – 1774 [in Russian].
- [14] Kidov A. A. and Matushkina K. A. (2013), "Reproductive biology of an Iranian long-legged frog, *Rana macrocnemis pseudodalmatina* Eiselt et Schmidtler, 1971 (Amphibia: Anura: Ranidae) in the northwest of an area," *Byull. Tambov Univ. Ser. Estestv. Tekhn. Nauki*, 18(6 – 1), 3012 – 3014 [in Russian].
- [15] Kidov A. A., Matushkina K. A., Blinova S. A., Afrin K. A., Kovrina E. G., and Baksheyeva A. A. (2015), "Reproduction of the Iranian long-legged frog (*Rana macrocnemis pseudodalmatina* Eiselt et Schmidtler, 1971) in laboratory conditions," *Curr. Stud. Herpetol.*, 15(3 – 4), 109 – 113 [in Russian].
- [16] Kuzmin S. L. (1999), *Amphibians of the Former USSR*, Moscow [in Russian].
- [17] Litvinchuk S. N., Rozanov Y. M., Borkin L. Y., and Skorinov D. V. (2008), "Molecular-biochemical and cytogenetic aspects of microevolution in tailless amphibians of fauna of Russia and neighboring countries," in: *Problems of Herpetology*, pp. 247 – 257 [in Russian].
- [18] Lyapkov S. M., Kornilova M. B., and Severtsov A. S. (2002), "Demographic characteristics and number dynamics of *Rana temporaria* population," *Zool. Zh.*, 81(10), 1251 – 1259 [in Russian].
- [19] Lyapkov S. M. and Volontsevich R. V. (2013), "Intrapopulation variability and sex differences in the age composition and body length of the acute frog of the Bryansk forest population," *Byull. Tambov Univ. Ser. Estestv. Tekhn. Nauki*, 18(6-1), 3038 – 3041 [in Russian].
- [20] Matkovsky A. V., Lyapkov S. M., and Starikov V. P. (2011), "The rates of postmetamorphic growth and the age composition of the populations of the acute frog near the northern boundary of the range according to skeletochronology," *Curr. Stud. Herpetol.*, 11(3 – 4), 143 – 156 [in Russian].
- [21] Popov K. K. (1958), "Materials on the biology of the Asia Minor frog on the northern slopes of the Central Caucasus," *Tr. Sev.-Oset. Gos. Pedagog. Inst.*, 23(1), 105 – 109 [in Russian].
- [22] Smirina E. M. (1989), "A technique for determining the age of amphibians and reptiles by layers in bones," in: *A Guide to the Study of Amphibians and Reptiles*, pp. 144 – 153 [in Russian].
- [23] Smirina E. M. and Makarov A. N. (1987), "On the establishment of the correspondence of the number of layers in tubular bones in amphibians to the age of individuals," *Zool. Zh.*, 66(4), 599 – 604 [in Russian].
- [24] Veith M., Kosuch J., and Vences M. (2003) "Climatic oscillations, triggered post-Messinian speciation of Western Palearctic brown frogs (Amphibia, Ranidae)," *Mol. Phylogen. Evol.*, 26, 310 – 327.
- [25] Veliyeva Z. D. (1975), *Fauna and Ecology of Amphibians of the Southeast of Azerbaijan SSR*. Candidate's Thesis, Baku [in Russian].
- [26] Zamaletdinov R. I., Belyavsky V. I., and Mikhailova R. I. (2005), "Features of the size-age structure of the population and the rate of puberty in the pond frog *Rana lessonae*," in: *Actual Problems of Ecological Physiology, Biochemistry and Genetics of Animals*, 73 – 78 [in Russian].